Office Action Summary	Application No.	Applicant(s)	
	09/197,314	KRISHNAMACHARI, SANTHANA	
	Examiner	Art Unit	
	Andy S. Rao	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-20,22-33,35-40 and 42-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-20,22-33,35-40 and 42-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date. _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Re-Opening of Prosecution After Rendered Decision

1. Claims 1-6, 9-19, 22-26, 40, 45, and 46 remain rejected under 35 U.S.C. § 102(b) as being anticipated by Ueno, as was set forth in the Office Actions of 4/17/02 and 9/18/02 and affirmed by the BPAI in the rendered decision of 11/12/08.

2. Claims 7 and 20 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over Ueno in view of Guetz, as was set forth in the Office Actions of 4/17/02 and 9/18/02 and affirmed by the BPAI in the rendered decision of 11/12/08.

3. Claims 27-32, 35-39, and 47 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over Ueno in view of Lempel, as was set forth in the Office Actions of 4/17/02 and 9/18/02 and affirmed by the BPAI in the rendered decision of 11/12/08.

4. Claim 33 remains rejected under 35 U.S.C. § 103(a) as being unpatentable over Ueno in view of Lempel and Guetz, as was set forth in the Office Actions of 4/17/02 and 9/18/02 and affirmed by the BPAI in the rendered decision of 11/12/08.

5. The previous rejection of claims 42-44 have been reversed by the BPAI in the rendered decision of 11/12/08. Upon further consideration, a new ground of rejection is made for the claims as set forth below.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-13 and 45 are rejected under 35 U.S.C. § 101 as not falling within one of four statutory categories of inventions. Supreme Court precedent[1] and recent Federal Circuit decisions indicate a statutory "process" under 35 U.S.C. § 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing[2]. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example there is not apparatus mentioned either in the preamble nor in the subsequent limitations for executing the method (i.e. elements are not sufficiently specified for performing the "selecting…", "locating…", "determining…" and "adding…" steps of independent claim 1), nor is the value determination considered transforming the data, as the processing appears to contained in the spatial domain, *In re Bilski, 88 USPQ2d 1385 (Fed. Cir. 2008).*

8. Claims 14-26, and 46 are rejected under 35 U.S.C. 101 because they are directed towards nonstatutory subject matter.

A). The Examiner notes that "…computer-executable process steps stored on a computer-readable medium, the computer-executable process steps to increase a resolution of at least a portion of a reference frame of video, the computer- executable process steps comprising…" is not statutory, because computer programs claimed as computer listings, instructions, or codes are

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[1] *Diamond v. Diehr, 450 U.S. 175, 184, (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70, (1972); Cochrane v. Deener, 94 U.S 780, 787-788 (1876).*

[2] The Supreme Court recognized that this test is not necessarily fixed or permanent and may evolve with technological advances. *Gottschalk v. Benson, 409 U.S. 63, 71 (1972).*

just the descriptions, expressions, of the program are not "physical things". They have neither computer components nor statutory processes, as they are not "acts" being performed. In contrast, a claimed "…computer readable medium encoded with a computer program, which when executed by a computer, causes the computer to…" defines structural and function interrelationships ***between the computer program and the rest of the computer***, and is statutory, *Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035,* and *Interim Guidelines, Annex IV (Section a).*

B). Also, it is noted that the "…computer-executable process steps stored on a computer-readable medium, the computer-executable process steps to increase a resolution of at least a portion of a reference frame of video, the computer- executable process steps comprising…" is considered non statutory as based on the pertinent section of the disclosure (Specification: page 11, lines 27-29; page 12, lines 1-9 which discloses the following:

> "…CPU 19 comprises one or more microprocessors which are capable of executing stored program instructions (i.e., process steps) to control operations of digital television 2. These program instructions comprise software modules, or portions thereof, which are stored in either an internal memory of CPU 19, non-volatile storage 22, or ROM 24 (e.g., an EPROM), and which are executed out of RAM 21. These software modules may be updated via modem 20 and/or via the MPEG bitstream. That is, CPU 19 receives data from modem 20 and/or in the MPEG bitstream which may include, but is not limited to, software module updates, video data (e.g., graphics data or the like), audio data, etc…"

The Examiner notes that specification only establishes support for a "…computer readable memory medium…" and not the broader class of "…computer readable medium…" as claimed. Also, the Examiner notes that the software modules appear to updated by means of a computer

readable communication medium (downloadable software via the modem or the MPEG bitstream) which is considered as non statutory subject matter as being a claim that recites a signal encoded with functionally descriptive material that fails to fall within any of the categories of patentable subject matter as set forth in §101, *O'Reilly, 56 U.S. (15 How.) at 112-14.*

C) The Examiner notes that "…computer-executable process steps stored on a computer-readable medium, the computer-executable process steps to increase a resolution of at least a portion of a reference frame of video, the computer- executable process steps comprising…" is not statutory, as not falling within one of four statutory categories of inventions. For instance, the claims are directed towards process steps, but fail to set forth steps in the subsequent limitation for performing the process. Codes are not steps. Therefore, it is not considered a method or process. The claim is also not directed towards an apparatus (i.e. machine), manufacture, or composition of matter- the only established statutory classes of invention.

Corrections to the claims, and supporting specification are required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 14-26, and 46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains,

or with which it is most nearly connected, to make and/or use the invention. The claims recite "…computer-executable process steps stored on a computer-readable medium, the computer-executable process steps to increase a resolution of at least a portion of a reference frame of video, the computer- executable process steps comprising…" which is a method/process. However, there are no claimed steps in the subsequent limitations. Codes are not steps. The specification fails to sufficiently address the enablement requirement because it fails to provide one of ordinary skill in the art with the requisite knowledge of implementing the step-less process.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 14-26, and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A). The Examiner notes that "…computer-executable process steps stored on a computer-readable medium, the computer-executable process steps to increase a resolution of at least a portion of a reference frame of video, the computer- executable process steps comprising…" is vague and indefinite, as it recites a process, without establishing the requisite steps for implementing the process. Codes are not steps.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., (US Patent: 5,475,435 hereinafter referred to as "Yonemitsu") in view of Yamaguchi et al., (US Patent: 5,883,678 hereinafter referred to as "Yamaguchi").

Yonemitsu et al discloses a layer encoding and decoding apparatus as shown in Figures 1 and 2, and the same television system which receives coded video data (Yonemitsu: column 1, lines 10-13; figure 2), and which forms images based on the coded video data, the television system comprising a decoder (Yonemitsu: figure 2) which decodes the video data to produce frames of video; elements (Yonemitsu: figure 2, elements 55, 57) which increases a resolution of a reference frame of video (Yonemitsu: column 2, lines 44-54; column 3, lines 25-35, column 4, lines 53-63; column 6, lines 34-67; column 7, lines 1-63), and determining values of additional pixels based on values of pixels in the selected block and on values of pixels in the one or more blocks and adding the additional pixels among the pixels in the selected block (Yonemitsu: column 6, lines 55-67; column 7, lines 1-10: interpolation occurs within up-sampling circuit 57 of figure 2); a display which displays an image based on the reference frame (Yonemitsu: column 1, lines 10-13: display an inherent feature of a "…television conference system…"), as in claim 42. However, Yonemitsu fails disclose a processor which increases the resolution of a reference frame of video based on pixels in the reference frame and based on pixels in at least one other target frame of the video, wherein the processor increases the resolution of the reference frame by selecting blocks of pixels in the reference frame and for each selected block, locating in N target frames one or more blocks of pixels that substantially correspond to the first

block of pixels, where the N target frames are separate from the reference frame, as in the claims. Yamaguchi discloses a video codec which includes a resolution conversion (Yamaguchi: figure 6, elements 210 and 230) that includes a processor (Yamaguchi: column 31, lines 30-61; figure 41B, element 1103) which increases the resolution of a reference frame of video based on pixels in the reference frame and based on pixels in at least one other target frame of the video (Yamaguchi: column 12, lines 45-55), wherein the processor increases the resolution of the reference frame by selecting blocks of pixels in the reference frame and for each selected block (Yamaguchi: column 14, lines 50-68), locating in N target frames one or more blocks of pixels that substantially correspond to the first block of pixels, where the N target frames are separate from the reference frame (Yamaguchi: column 24, lines 40-67), in order to allow for foreground/background object based resolution conversion (Yamaguchi: column 1, lines 50-67; column 2, lines 1-13). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the Yamaguchi processor implementing resolution conversion as specified, into the Yonemitsu apparatus in order to allow for the implementation of foreground/background object based resolution conversion into the composite apparatus. The Yonemitsu apparatus, as modified to include the Yamaguchi processor executing resolution conversion, has all of the features of claim 42.

Regarding claim 43, the Yonemitsu apparatus, as modified to include the Yamaguchi processor executing resolution conversion, discloses wherein in a case that the processor does not locate any blocks of pixels in the target frames that substantially correspond to the selected block of pixels, the processor determines the values of the additional pixels based on values of pixels in the selected block without regard to values of pixels in the N target frames (Yonemitsu:

column 2, lines 55-62; column 6, lines 34-44: I frame processing as determined from the macroblock type signal specifies "intraframe" only processing. Intraframe only processing would rely upon the pixel values within the same frame, and not look to any reference, or target, frames), as in the claim.

15. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., (US Patent: 5,475,435 hereinafter referred to as "Yonemitsu") in view of Yamaguchi et al., (US Patent: 5,883,678) as applied to claims 42 and 43 above, and further in view of Song et al of record (US Patent: 6,115,070 hereinafter referred to as "Song").

The Yonemitsu apparatus, as modified to include the Yamaguchi processor executing resolution conversion, discloses substantially the same television system as above, but does not particularly disclose wherein the decoder and the processor are implemented in a set-top box as claimed in claim 44. Such decoder and processing within a set-top box is however old and well recognized in the art, as exemplified by the tertiary reference (Song: figure 24; column 24, lines 64-67; column 25, lines 1-18). Therefore, it would have been obvious to one of ordinary skill in the art, having the Yonemitsu, Yamaguchi, and Song references in front of him/her and the general knowledge of set-top box functionality, to provide the set-top box with decoder and processing capabilities as taught by Song for the composite Yonemitsu-Yamaguchi composite video image system for the same well known MPEG compliant decoding purposes as claimed. The Yonemitsu apparatus, as modified to include the Yamaguchi processor executing resolution conversion and the Song set-top functionality, has all of the features of claim 44.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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